

CLAIMS

What is claimed is:

1. A delivery apparatus for folding machines having a folding apparatus and a delivery apparatus, the improvement comprising
a delivery fly for receiving signatures folded by the folding apparatus,
a conveyor operating at a predetermined speed ratio with respect to a delivery fly for receiving signatures from the delivery fly,
a gear drive provided between the folding apparatus and the delivery fly and having a plurality of gear ratios for transmitting power to the delivery fly,
changeover means capable of selectively changing over the gear ratios of the gear drive;
so that the operating speed of the delivery fly can be set to a plurality of speed steps with respect to the operating speed of the folding apparatus.
2. A delivery apparatus for folding machines as set forth in Claim 1 wherein the folding apparatus comprises a cutting cylinder, a folding cylinder, and two folding rollers provided facing each other; the cutting cylinder having a plurality of cutting blades provided at equal intervals on the outer circumferential surface of the cutting cylinder, and the folding cylinder comprises a plurality of blade rests provided at equal intervals on the outer circumferential surface of the folding cylinder, a plurality of pins provided on the upstream side in the rotational direction of the folding cylinder in the vicinity of the blade rests in such a manner as to be retractable, and a plurality of tucker blades mounted on a tucker-blade supporting member provided coaxially on the cylinder shaft of the folding cylinder in such a manner that the tucker blades can be caused to protrude from the outer circumferential surface of the folding cylinder and inserted in between the two folding rollers.

3. A delivery apparatus for folding machines as set forth in Claim 2 wherein the folding apparatus is such that the pins on the upstream side in the rotational direction in the vicinity of the blade rests of the folding cylinder pierce areas on the upstream side in the vicinity of the cutting position of longitudinally folded paper webs and hold areas in the vicinity of the cutting position of the longitudinally folded paper web on the outer circumferential surface of the folding cylinder before the longitudinally folded paper webs are cut by the cutting blades of the cutting cylinder and the blade rests of the folding cylinder.

4. A delivery apparatus for folding machines as set forth in Claim 2 wherein the folding apparatus is such that the ratio of the circumferential length of the cutting cylinder and the folding cylinder is 2 to 3, the cutting cylinder has two cutting blades, the folding cylinder has three blade rests, three pins and two tucker blades, and the tucker-blade support member for supporting the two tucker blades at both ends thereof makes a $1/2$ rotation at every $1/3$ rotation of the folding cylinder.

5. A delivery apparatus for folding machines as set forth in Claim 4 wherein the folding apparatus is such that the pins retract into the folding cylinder at every one rotation at a position $1/3$ ahead in the rotational direction of the folding cylinder from the position where the cutting cylinder and the folding cylinder come very close to and face each other to sequentially release the cut-length sheets held by the pins, the tucker blades are caused to protrude from the outer circumferential surface of the folding cylinder simultaneously with the sequential release of the cut-length sheets by the pins and sequentially insert the intermediate parts of the cut-length sheets in between the two folding rollers provided in parallel in the vicinity of the downstream side of the

folding cylinder, and the two folding rollers nip the intermediate parts of the cut-length sheets inserted in between the two folding rollers to form creases and release as signatures the cut-length sheets, with the creases leading the way, towards the delivery fly provided on the downstream side of the two folding rollers.

6. A delivery apparatus for folding machines as set forth in Claim 1 wherein the gear drive has two gear ratios for the straight run for sequentially folding in the folding apparatus cut-length sheets obtained by cutting a paper web into a predetermined length and for the collect run for overlapping two cut-length sheets in the folding apparatus and then folding the overlapped two cut-length sheets.

7. A delivery apparatus for folding machines as set forth in Claim 1 wherein the changeover means is provided rotatably with respect to the shaft of the delivery fly, and comprises two gears each having clutch tooth on a side surface thereof, and a double-faced tooth clutch, with both side surfaces thereof having clutch teeth each in mesh with the clutch tooth on each of the gears; the double-faced tooth clutch being restricted in the rotational direction with respect to the delivery fly shaft provided via a sliding key and axially movable.

8. A delivery apparatus for folding machines as set forth in Claim 7 wherein the double-faced tooth clutch can be changed over via a pneumatic cylinder.

9. A delivery apparatus for folding machines as set forth in Claim 1 wherein the discharge conveyor is driven by power transmitted by a delivery fly sprocket provided on the delivery fly shaft, a conveyor sprocket provided on the rotational shaft of the discharge conveyor, and an endless chain stretched over the delivery fly sprocket and the

conveyor sprocket, so that the discharge conveyor is caused to rotate at a predetermined speed ratio with respect to the delivery fly.

10. A delivery apparatus for folding machines as set forth in Claim 1 wherein the delivery fly has a plurality of small-diameter discs having a plurality of blades extending almost tangentially at equal intervals of the outer circumferential surface of the delivery fly; the small-diameter discs being provided on the delivery fly shaft, with the phases in the circumferential direction of the blades matched with each other.